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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,292	10/21/2003	William E. Ortyn	BIOL0072	2249

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EXAMINER

PUNNOOSE, ROY M

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/691,292

Applicant(s)

ORTYN ET AL.

Examiner

Roy M. Punnoose

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-33 and 38-40 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 24-30 and 38-40 is/are rejected.
7) ☒ Claim(s) 31-33 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 21 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/2/2004.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Preliminary Amendment

1. Receipt of applicant's preliminary amendment filed on October 21, 2003 is acknowledged. The amendment has been entered into the records.
2. In the above preliminary amendment, the applicant has cancelled claims 1-23 and 34-37, and added new claims 38-40. Claims 24-33 and 38-40 are pending in the application.

Specification

3. The disclosure is objected to because of the following informalities: In the above preliminary amendment, applicant is requested to update the information under "Related Applications" as other applications that have since become U.S. patents are not included in it. Appropriate correction is required.

Abstract

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because it has 241 words and exceeds the 150 words limit as noted above. Correction is required. See MPEP § 608.01(b).

Drawings

6. The drawings are objected to because:

a. Figure 11 shows that line 143 has triangle data-points and line 141 has square data-points. The specification states that line 141 has triangle data-points and line 143 has square data-points (see pg. 13, lines 6 and 17).

b. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means for controlling a waist of the beam of light must be shown or the feature(s) canceled from the claims 39 and 40. No new matter should be entered.

7. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 39 and 40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The limitation that recites “means for controlling a waist of the beam of light” is not described in the specification in such a way as to enable one skilled in the art to which it pertain.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 24, 27, 29, 30 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levine (US_5,854,685) in view of Ambrose et al (US_6,309,886).**

12. Claim 24, 30 and 39 are rejected because:

- A. Levine discloses an apparatus (see Figure 1) comprising, a light source 20 that produces a beam of light 18 (see col.3, lines 47-49), a first reflecting surface 22a and a second reflecting surface 22b maintained in an opposite, facing relationship so as to define a reflection cavity including a field of view traversed by an object (see abstract), said beam

of light 18 being incident upon the first reflecting surface 22a at an acute angle relative to a normal to the first reflecting surface 22a and being reflected back and forth between the first reflecting surface 22a and the second reflecting surface 22b so as to cross the field of view a plurality of times, thereby illuminating the object as it passes through the field of view, said apparatus for increasing the amount of incident light upon these objects to increase scattered, fluorescent, and other signals from moving objects for determining one or more characteristics of an object suspended in a flow stream from an image of the object. However, Levine does not disclose a first set of optics disposed so that light traveling from the object passes through the first set of optics so as to produce a first image of the object, and a first light detector disposed so as to receive the first image of the object, for determining one or more characteristics of an object suspended in a flow stream from an image of the object.

- B. Ambrose et al (Ambrose hereinafter) discloses an apparatus (see Figure 1) in which a first set of optics 16 disposed so that light traveling from the object 18 passes through the first set of optics 16 so as to produce a first image of the object 18, and a first light detector 22 disposed so as to receive the first image of the object 18, said first light detector 22 detecting at least one characteristic of the object 18 (see col.3, lines 50-65) in an apparatus for determining one or more characteristics of an object suspended in a flow stream from an image of the object.
- C. In view of Ambrose's teachings, it would have been obvious to one of ordinary skills in the art at the time the invention was made to incorporate a first set of optics so as to produce a first image of an object, and a first light detector disposed so as to receive the first image of the object into Levine's apparatus due to the fact that such incorporation

would provide a more accurate apparatus for determining one or more characteristics of an object suspended in a flow stream from an image of the object.

Note: (a) Claim 1 is silent on the orientation of the “field of view” limitation, and also if the “field of view” is with respect to an observer or a detector or some other point of reference. Therefore, in the broadest sense, Levine’s teachings are applicable to the limitations and subject matter of claim 1.

(b) In claim 39, the limitation that recites “means for controlling a waist of the beam of light” has not been given any patentable weight because it is neither adequately described in the specification nor shown in the drawing.

13. Claim 27 is rejected for the same reasons of rejection of claim 24 above and because the first reflecting surface and the second reflecting surface are supported by a support member, the support member being the side wall of the chamber 14 (see Figure 1).

14. Claim 29 is rejected for the same reasons of rejection of claim 24 above and because in view of Levine’s and Ambrose’s teaching of one type of optics, it would have been obvious to one of ordinary skills in the art at the time the invention was made to include a microscope objective into Levine’s apparatus due to the fact that such incorporation would provide a more precise image of the object for a more accurate apparatus for determining one or more characteristics of an object suspended in a flow stream from an image of the object.

15. **Claim 25, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levine (US_5,854,685) in view of Ambrose et al (US_6,309,886) and further in view of Kain (US_5,754,291).**

16. Claim 25 is rejected because:

- A. Levine and Ambrose teach all claim limitations, except that the first light detector comprises a time-delay integration (TDI) detector that produces an output signal by integrating light from at least a portion of the object over time in an apparatus for

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determining one or more characteristics of an object suspended in a flow stream from an image of the object.

B. Kain discloses prior art teachings of TDI detector that produces an output signal by integrating light from at least a portion of the object over time (see col.2, lines 19-25) in an apparatus for determining one or more characteristics of an object suspended in a flow stream from an image of the object.

C. In view of Kain's teachings, it would have been obvious to one of ordinary skills in the art at the time the invention was made to incorporate a TDI detector into Levine's apparatus due to the fact that such incorporation would provide an output signal by integrating light from at least a portion of the object over time for a more accurate apparatus for determining one or more characteristics of an object suspended in a flow stream from an image of the object.

17. Claim 28 is rejected for the same reasons of rejection of claims 24 and 25 above and because the limitations of claim 28 are mere duplication of limitations of claim 25. Also, the examiner takes official notice that it is known in the art that a stereo image can be made if two or more images of an object are available for the processing of the images.

18. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levine (US_5,854,685) in view of Ambrose et al (US_6,309,886) and further in view of Sweedler et al (US_5,141,609).

Claim 26 is rejected because:

A. Levine and Ambrose teach all claim limitations, except that the first light detector comprises a photomultiplier tube for detecting the light from an object in an apparatus for

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determining one or more characteristics of the object suspended in a flow stream from an image of the object.

B. Sweedler et al (Sweedler hereinafter) discloses the use of a photomultiplier tube for detecting the light from an object (see col.1, lines 51-54) in an apparatus for determining one or more characteristics of an object suspended in a flow stream from an image of the object.

C. In view of Sweedler's teachings, it would have been obvious to one of ordinary skills in the art at the time the invention was made to incorporate a photomultiplier tube into Levine's apparatus due to the fact that such incorporation would provide more sensitive detection of the light from an object for a more accurate apparatus for determining one or more characteristics of an object suspended in a flow stream from an image of the object.

19. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levine (US_5,854,685) in view of Ambrose et al (US_6,309,886) and further in view of deMey et al (US_4,311,387).

Claim 38 is rejected because:

A. Levine and Ambrose teach all claim limitations, except that the first reflecting surface and the second reflecting surface being sized and oriented such that the beam of light both enters and exits said reflection cavity adjacent one of said first reflecting surface and said second reflecting surface in an apparatus for determining one or more characteristics of an object suspended in a flow stream from an image of the object.

B. deMey et al (deMey hereinafter) discloses an apparatus (see Figure 1) comprising a first reflecting surface 22 and a second reflecting surface 26 being sized and oriented such that the beam of light both enters and exits said reflection cavity adjacent one of said first

reflecting surface and said second reflecting surface in an apparatus for determining one or more characteristics of an object suspended in a flow stream.

- C. In view of deMey's teachings, it would have been obvious to one of ordinary skills in the art at the time the invention was made to incorporate a first reflecting surface and a second reflecting surface being sized and oriented such that the beam of light both enters and exits said reflection cavity adjacent one of said first reflecting surface and said second reflecting surface into Levine's apparatus due to the fact that such a combination would provide a better focused light on the object for a more accurate apparatus for determining one or more characteristics of an object suspended in a flow stream from an image of the object.

20. Claim 40 has not been treated on its merits because of the 35 U.S.C. 112, first paragraph deficiency as detailed above.

Allowable Subject Matter

21. Claims 31-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, or if the rejection to the base claim can be overcome.

22. Claims 31-33 are allowable because the prior art of record fails to disclose or render obvious an apparatus for determining one or more characteristics of an object suspended in a flow stream from an image of the object in which at least one of a first reflecting surface and a second reflecting surface is curved to focus a beam of light onto an axis along which the object moves in a reflection cavity, to reduce a spread of the beam of light where the beam of light illuminates the object, in combination with the rest of the limitations of said claims.

Conclusion

23. Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice in this office action. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made. In re Selmi, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In re Fischer, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also In re Boon, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the **next reply** after the Office action in which the well known statement was made.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Roy M. Punnoose** whose telephone number is **571-272-2427**. The examiner can normally be reached on 9:00 AM - 5:30 PM.

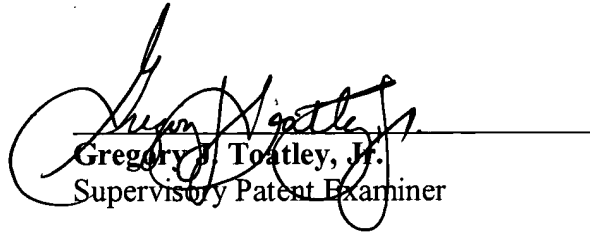
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Gregory J. Toatley, Jr.** can be reached on **571-272-2059**. The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Roy M. Punnoose
Patent Examiner
Art Unit 2877
November 20, 2004



Gregory J. Toatley, Jr.
Supervisory Patent Examiner